REMARKS

Claims 1-39, all the claims pending in the application, stand rejected. Claims 6 and 27 have been amended. No claims have been canceled.

Specification

The Examiner objects to the disclosure because of certain informalities identified at pages 8 and 19. Applicants appreciate the Examiner's detailed review and comment with regard to the specification and has made the changes. No new matter has been added. On the basis of these changes, this objection should be withdrawn.

Further, an Abstract has been added, as required by the Examiner.

Claim Objections

Claims 6 and 27 are objected to because of certain informalities. Applicants have amended these claims in order to remedy these deficiencies. Accordingly, these objections should be withdrawn.

Claim Rejections - 35 U.S.C. § 112

Claim 4 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner notes that claim 4 at line 6 recites "said n number of ATM cells" and concludes there is insufficient antecedent basis for this limitation in the claim. The Examiner respectfully refers to line 4 where the antecedent basis exist in the original claim language. Accordingly, this rejection should be withdrawn.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 5, 7, 8, 13, 19, 21, 28 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Iidaka et al (5,528,590) in view of Easki et al (5,440,547) in further view of Naimpally et al (5,650,825) in further view of Wolf et al (5,892,770). This rejection is traversed for at least the following reasons.

As a preliminary matter, Applicants respectfully submit that the fundamental principle in each of the rejected independent claims 1, 13, 19, 21 and 28 is the use of a header frame made up of headers of a number of a plurality of ATM cells. Contrary to the Examiner's analysis, independent claim 28 does not have this limitation, but , nonetheless, is patentable due to its teaching of a <u>wireless</u> link. In this same regard, all of the rejected claims concern the transmission of ATM cells over a <u>wireless</u> link. This limitation is supported by the disclosure which, in its preferred embodiments, is directed a terrestrial-satellite interface as is evident from the illustration in Fig. 1. Nothing in the prior art addresses these two express limitations of the claims.

Turning first to the Examiner's comments with regard to the rejection, at page 3, the Examiner states that the main reference (Iidaka) "possibly does not expressly disclose assembling a header frame made up of headers of a number of said plurality of ATM cells." Indeed, neither Iidaka nor any of Easki et al, Naimpally et al or Wolf et al teach this feature. The Examiner submits a conclusion that it would have been obvious to one of ordinary skill in the art at the time of the invention to additionally transmit the header information without relying on a costly routing table. However, the plain fact is that none of the reference disclose the concept of

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forming a header frame and separately transmitting a collection of headers for a plurality of

ATM cells. For reasons given in the specification, this is a new and unobvious feature and

clearly a basis for patentability.

Further, the concept of assembling a plurality of headers in a separate frame for

transmission has unique advantages with regard to a wireless network. As is clear from the

careful reading of Iidaka et al, this reference concerns a method of communicating between an

ATM-UNI and a LAN in a communication apparatus. There is no concern with a wireless

network. Similarly, Easki concerns routing management for a packet oriented digital

communication as focused on a LAN network, as is clear from a careful reading of this

reference. Similar comments relate to Naimpally, which is cited solely for its teaching of byte

stuffing in an HDTV environment and Wolf et al, which concerns ATM transmissions in

broadband communications. The differences between a wireless network environment and a

LAN or wired environment are significant. In the wireless system, where interference from

weather, buildings, other signal sources, etc. are of concern, there is a significant challenge

presented by burst errors and other error issues in general. Channel access is provide by FDMA,

TDMA, SDMA or the like, and there is a need to protect both headers and data against the

interference found in the hostile wireless environment. Moreover, there is larger granularity, due

to more data being grouped together with the same next-hop destination. The prior art does not

consider any of these issues.

Not only is the absence of these two key characteristics a fundamental flaw in the

Examiner's rejection, the fact that the Examiner must combine four references, commenting that

combined teachings of these references "possibly does <u>not</u> expressly disclose" certain features clearly underscores the Examiner's use of hindsight in creating the rejection. The Examiner clearly has not established a *prima facie* case of obviousness for at least the reasons given. Therefore, these rejections should be withdrawn. Applicants have solved unique problems in the wireless ATM art and is entitled to the protection of the inventions defined by the claims.

Claims 2, 3, 22 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Iidaka et al (5,528,590) in view of Easki et al (5,440,547) in further view of Naimpally et al (6,50,825) in further view of Wolf (5,892,770) as applied to claims 1 and 21 and further in view of Yamashita (5,341,376). This rejection is traversed for at least the following reasons.

The Examiner expressly acknowledges that the combination of references cited against claims 1 and 21 do not expressly disclose that the header frame is arranged in i row x n column matrix or that the payload frame is arranged in an j row x m column matrix. The Examiner looks to Yamashita for discloses a matrix for organizing mapping of ATM cells into a frame format. However, Yamashita suffers from the same serious deficiencies already described with regard to the other cited references. In short, there is no teaching of a header frame nor a wireless communication. As is clear from Figure 1, the concern of Yamashita is simply with regard to an ATM cell format converter that is coupled to an ATM switch. Nothing in the reference remedies deficiencies of the other cited references.

Claims 4 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Iidaka et al (5,528,590) in view of Easki et al (5,440,547) in further view of Naimpally et al (5,650,825) in further view of Wolf et al (5,892,770) as applied to claims 1 and 19 and

further in view of Jurkevich et al (5,282,207). This rejection is traversed for at least the following reasons.

The Examiner here again admits that the combined references applied against claims 1 and 19 do not expressly disclose that a step of assembling a header frame further comprises partitioning header frames comprised of headers of n number of ATM cells into a first section and a second section. The Examiner looks to Jurkevich for disclosure of partitioning the frame of data into a plurality of sections in order to group together traffic of the same type. This teaching is wholly inadequate to overcome the deficiencies of the other combination of references, as already outlined. Jurkevich simply does not teach a frame of headers nor does it teach a wireless network. As is clear from the figure that appears on the face of the reference, the header remains combined with the payload and is not separately assembled into a frame containing other headers. Nothing in Jurkevich teaches the application of such header frame technique to a wireless system. Indeed, Jurkevich teaches precisely the opposite. Accordingly, this rejection should be withdrawn.

Claims 6 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Iidaka et al (5,528,590) in view of Easki et al (5,440,547) in further view of Naimpally et al (5,650,825) in further view of Wolf et al (5,892,770) as applied to claims 5 and 8, and further in view of Matsushita (5,608,738). This rejection is traversed for at least the following reasons.

The Examiner admits that the combination of art applied against claims 5 and 8 do not expressly disclose that the header error correction code or payload error correction code is

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generated using a Reed-Solomon coding scheme. The Examiner comments that Matsushita discloses that Reed-Solomon is well known coding scheme which provides error correction, and concludes it would have been obvious to one of ordinary skill in the art to use Reed-Solomon coding. The flaw in the Examiner's analysis is that the fundamental principles of the invention are not anticipated or rendered obvious by the other cited art. Further, Matsushita does not remedy these deficiencies, nor is it cited for such purposes. Accordingly, this rejection should be overcome.

Claims 10-12, 25-27 and 31-39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Iidaka et al (5,528,590) in view of Easki et al (5,440,547) in further view of Naimpally et al (5,650,825) in further view of Wolf et al (5,892,770) in further view of Yamashita (5,341,376) in further view of Chitre et al (5,600,653). This rejection is traversed for at least the following reasons.

With regard to claims 10-12, these claims all require the assembly of a header frame made up of headers of a first predetermined number of a plurality of ATM cells arranged from the first matrix. With reference to the analysis provided above with regard to the rejection of independent claims 1, 13, 19 and 21, the absence are any teaching in the cited references of a header frame or a wireless communication provides clear support for overcoming this rejection.

Moreover, while the patent to Chitre does concern the preparation of a d=DS-3 ATM cell stream for application to a satellite modem, as illustrated in Fig. 1, Chitre has no teaching with regard to the preparation of a header frame. Nothing in Chitre would lead one of ordinary skill

in the art to form such header frame since the problem encountered by the Applicants of the present invention is not recognized in Chitre et al.

Further, Applicants submit that at the time the invention was made, as is clearly evident from the PCT application from which the present application derives, and the face of the Chitre et al reference, the invention was commonly owned by Comsat Corporation. In accordance with the provisions of 35 USC §103(c), the Chitre et al reference must be removed as a reference for purposes of patentability. Chitre is qualified to be a reference only under 35 U.S.C. §102(e) but not a reference under 35 U.S.C. § 102(b) and, therefore, subject to removal under 35 U.S.C. § 103(c).

With regard to claims 25-27 and 31-39, again the prior art is deficient in that it does not teach a sequence transmitted via a <u>wireless link</u>. Further, Chitre is removed as a reference, thereby leaving the combination of other references deficient with regard to at least teachings of Chitre. On this basis, the rejection should be withdrawn.

Claims 14 and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakagaki et al (5,657,316) in view of Naimpally et al (5,650,825) in further view of Wolf et al (5,892,770). This rejection is traversed for at least the following reasons.

The invention set forth in claims 14 and 30 relate to an ATM wireless link and the method of recording information that comprises recording original positions of idle/unassigned cells as they occur in the cell stream and moving idle/unassigned cells to new positions at a selected portion of an ATM frame. Header bytes of the moved idle/unassigned cells are then overwritten.

Nothing in the prior art teaches this technique. Nakagaki is not concerned with a wireless system. Nakagaki teaches the insertion of dummy data in order to compensate for variable data lengths in an ATM system, particularly where a lost cell is detected. Thus, the data length before losing cells can be restored. This is nothing to do with the features of _moving_ idle and unassigned cells to new positions and, in particular, overwriting header bytes for each moved idle/unassigned cell. The Examiner acknowledges that Nakagaki has this deficiency, but asserts that it is well known in ATM to use idle/unassigned cells for cell stuffing during which adaptation and fulfilling bandwidth.. The Examiner looks to Wolf for a disclosure of detecting idle/unassigned cells so that control information can be placed within these cells. The Examiner jumps to the conclusion that it would have been obvious to one of ordinary skill in the art to detect idle and unassigned cells so that wasted bandwidth could be utilized and, in addition, to place some of the detected idle/unassigned cells at the end of the payload and header frames in order to obtain contiguous slot of bandwidth in which to insert information. The Examiner nonetheless admits that this combination does not expressly disclose overwriting header bytes of each moved idle/unassigned cell at page 16. The Examiner simply notes that Wolf discloses a sequence of numbers to be added to a payload and concludes that writing the sequence numbers of the idle/unassigned cell in the header of this cell would have been obvious. The Examiner then leaps to the conclusion that it would have been obvious to write the sequence number in the header of the idle/unassigned cell in order to have a larger slot of unused contiguous bandwidth. There again the Examiner is inventing something, which has no disclosed structure or operational features in order to assert that this hypothetical arrangement would render the

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claimed invention obvious. The fact that the Examiner must cobble together so many references in order to fill gaps in the teachings of the individual references clearly demonstrate that a *prima facie* case of obviousness has not been made. The Examiner is engaging in improper hindsight in order to derive the invention from bits and pieces of the prior art. Clearly this is improper and the rejection should be overcome.

Claims 15-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shobatake et al (5,557,609). This rejection is traversed for at least the following reasons.

Claim 15 is also directed to a method of transmitting ATM cells over a <u>wireless link</u> and concerns receipt of a plurality of ATM cells each having a header, the header including at least one header error correction byte. A further step is dropping the header error correction byte from the header to leave an unoccupied byte space in the header. Other information is inserted into the unoccupied byte space and then transmitted. The clear advantage of efficient use of bandwidth in this case presents an advantage over the prior art.

Shobatake et al does not concern a wireless network. The Examiner observes that the header in Shobatake includes a header error correction byte and asserts that the byte is dropped to leave an unoccupied space in the header, with reference to column 6, lines 4-9. The Examiner also asserts that insertion of other information into the unoccupied byte space is taught by Shobatake. However, such new information is a new HEC value, and not "other information" as claimed. Applicants have amended the claim to clarify that the information is non HEC information. Accordingly, this rejection should be overcome.

Claim 18 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakagaki et al (5,657,316). This rejection is traversed for at least the following reasons.

Claim 18 is directed to a method of preserving overhead parity bits present in each of a plurality received ATM frames which are to be transmitted over a wireless link. Further, the method includes assembling header and payload frames for transmission over the wireless link. There is no teaching in Nakagaki et al of any assembly of a header frame. The argument for this distinction has previously been presented and is incorporated here by reference.

On the basis of the foregoing arguments, and amendments, the rejections made by the Examiner should be overcome. Accordingly, all claims should now be considered patentable and the application passed to issue.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/462,895

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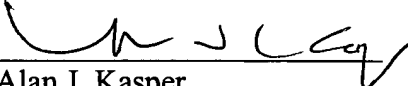
Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

Alan J. Kasper
Registration No. 25,426

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: November 5, 2003